hazardous substances in the hazard zone. In particular, consideration must be given to limiting electrical energy at potential sources of ignition in electrical circuits (e.g., the controller) to such low levels that even under abnormal conditions there is no possibility of the electrical energy igniting an explosive atmosphere in the hazard zone. Page 8, lines 9-16. The intrinsic safety barrier limits the electrical energy flowing from the controller to the communication device. Page 8, lines 17-20.

Mathewes et al. disclose an intrinsically safe control system 40 for paint gun 20 of robot 12. Intrinsically safe control system 40 includes main controller 42 and gun controller 44, wherein main controller 42 (which may be in hazardous zone 28 or safe zone 30) is connected to gun controller 44 by communication network 46, and gun controller 44 (which is located in hazardous zone 28) is connected to paint gun 20 to generate control signals to operate a paint gun regulator 21 to control flow, distribution, and dispersion of paint output from paint gun 20. Col. 3, lines 16-44. The control signals exchanged between main controller 42 and gun controller 44 on communication network 46 utilize fiber interconnection to maintain intrinsically safe operation. Col. 3, line 65 to col. 4, line 1. In addition, each component of gun controller 44 operates in an intrinsically safe mode. Col. 5, lines 64-65. For example, microprocessor bank 52 includes three microprocessors in order to limit the operating power required for any one microprocessor to maintain operation within an intrinsically safe range. Col. 6, lines 6-10. In other words, each electrical component of control system 40 (and in particular gun controller 44) is specifically designed to limit the amount of energy produced, thus making the overall system intrinsically safe.

The Office Action refers to column 1, lines 21-30 and column 2, lines 7-10 in Mathewes et al. as disclosing the intrinsic safety barrier element as recited by claim 1. These sections disclose (1) that ignition of the hazardous atmosphere is prevented by limiting the energy required to operate the electrical equipment to reduce the opportunity for creating sparks and other igniting phenomenon, and (2) that existing technologies do not provide pressure control valves that operate in intrinsically safe mode when used in conjunction with control devices. Consequently, the non-intrinsically safe pressure control valves must be operated outside of the hazardous area to meet intrinsically safe standards. Thus, this section describes the way non-intrinsically safe equipment

must be connected in systems that include a hazardous environment, and does not disclose the use of an intrinsic safety barrier to limit electrical energy passing to the hazardous area.

Applicants do not claim to have invented the use of intrinsically safe equipment in a hazardous area to prevent ignition of the hazardous environment. Rather, what is novel and what is not disclosed in the prior art of record is the use of a separate electrical component (an intrinsic safety barrier) located in a non-hazard zone that limits the electrical energy passed between a controller (located in the non-hazard zone) to a communication device (located in a hazard zone) that stores information to and reads information from a storage device in the hazard zone. Thus, the intrinsic safety barrier in the system as disclosed in claim 1 of the present application is not taught by Mathewes et al.

Therefore, because Mathewes et al. fail to teach or fairly suggest the intrinsic safety barrier as recited by claim 1, the recited elements of claim 1 are not disclosed by Mathewes et al., and the rejection of claim 1 under 35 U.S.C. § 102(e) should be withdrawn.

Claims 2-11 and 38 were objected to as being allowable but dependent upon a rejected base claim. In that claim 1 is in condition for allowance, and claims 2-11 and 38 depend therefrom, the objection to claims 2-11 and 38 should be withdrawn.

The allowance of claims 13-37 and 39-42 is acknowledged.

CONCLUSION

In view of the foregoing, it is believed that all claims in the present application are in condition for allowance. Reconsideration and allowance of claims 1-42 are respectfully requested.

Respectfully submitted,

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